

REMARKS

Claim Amendments

Claim 5 was again amended for internal consistency, so that it would be clear that the claimed card is compatible with different types of receptacles, not just different receptacles of the same type.

New Matter objections and rejections under

35 U.S.C. § 132 and 35 U.S.C. § 112, first paragraph

The Examiner objected to what was believed to be new matter in claims 5-14 and in the previous responses in general. In particular, the Examiner asserted that “the requirement that the claimed memory card is compatible with two different receptacles or formats” was new material. However, it is kindly asserted that no new matter was introduced in the previous responses. Contrary to the Examiner’s assertion, the specification, as filed, teaches and contemplates a memory card “compatible with two different receptacles or formats.”

The specification explicitly teaches a removable memory card that is used in receptacles of host electronic systems or devices. These are devices such as cellular telephones, music players and other personal electronic equipment. Two specific examples of different receptacles or formats are taught: the MMC card and its associated receptacle, and the SD card and its associated receptacle. The relevant portions are shown here for convenience:

BACKGROUND OF THE INVENTION

This invention relates to a small card containing digital memory, such as a non-volatile flash EEPROM system, having exposed surface electrical contacts that allow easy connection to and removal from a receptacle of a host electronic system or device, particularly portable devices, in order to provide removable electrical connection between the system or device and the memory within the card through the exposed surface contacts of the card.

Small memory cards are increasing in popularity for use in small hand held devices such as cellular telephones, music players and other personal electronic equipment. Memory cards are being made smaller for such applications while the size of their individual external surface electrical contacts are not being reduced in size to any significant degree. This presents a challenge to the design and packaging of such memory cards. In a specific example, an existing commercial Multi-Media Card (MMC) product has been manufactured and sold for a time. The MMC has seven surface contacts extending across a short edge of

the rectangular card that also includes a cut-off corner. Evolving applications for this type of memory card have made it necessary to add several external contacts without increasing the size of the card.

SUMMARY OF THE INVENTION

This has been accomplished by increasing the number of contacts of the row of contacts used on the MMC product while maintaining the position of the row along the short edge of the rectangularly shaped card. This maintains a degree of compatibility between the MMC product and the new card, known as a SD Card product. In order to increase the number of contacts, two contacts are positioned in the space previously occupied by one and another contact is positioned at the cut off corner and set back from the card edge a distance that is greater than other contacts of the row.

Application Pages 1-2 (emphasis added).

Thus, the application explicitly teaches that the positioning of the contacts of the present invention is compatible with both MMC products and SD card products. The memory cards (products) are also explicitly taught “to allow easy connection to and removal from a receptacle of a host electronic system or device.” At the time of the invention, as is taught by the application, it was well known that a host device, for example, a digital camera, had a receptacle designed to accept a specific type or format of memory card, for example an MMC card. The slot or receptacle of the camera was known to have contacts equal in number to those of the card, and the contacts were known to be in the proper location in the receptacle to establish electrical connection between the contacts of the card and the receptacle of the camera.

In addition to the explicit teachings of the specification, the specification also inherently teaches and discloses to one of ordinary skill in the art a memory card “compatible with two different receptacles or formats” because one of ordinary skill in the art would understand, having read at least the above excerpted portions of the specification, that the card is taught is necessarily compatible with both an SD and an MMC receptacle.

Therefore, claims 5-14 are supported by the specification, as filed, and allowance of these claims is requested.

The Examiner is kindly requested to explain the position that one of ordinary skill in the art would not understand that the application teaches “that the claimed memory card is compatible with two different receptacles or formats.”

Claim 14: The Examiner's indication that the objection to claim 14 was overcome is appreciated.

Claims 9 and 10: Claims 9 and 10 were rejected under 35 U.S. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner has contended that "the 'means for contacting' is part of an electronic device, not the memory card to which the claim is drawn." Office Action, page 2. This is simply not true. Both a memory card and a device must have "means for contacting" the other object. If the memory card did not comprise "means for contacting" it could not make contact with the device and would be useless.

Thus, it is submitted that new matter has not been added in any of the prior responses, and that the application fully complies with the written description requirement of 35 U.S.C. § 112, first paragraph.

Rejections under 35 U.S.C. § 102

Claims 5-7 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,333,854 to Sasaoka et al. ("Sasaoka")

The Examiner has contended that Sasaoka teaches every element of claims 5-7. The pertinent portion of claim 5 is as follows:

"a first group of rectangularly shaped recesses formed in a row extending along one of said adjacent straight edges, said group containing electrical contacts at the bottom of the recesses, said group compatible with a first type of memory card receptacle; and

a second group of one or more recesses containing one or more electrical contacts,

said first and second group of contacts together compatible with a second type of memory card receptacle" (emphasis added).

Sasaoka does not teach these limitations, including compatibility with different receptacles, nor has the Examiner pointed out any specific teachings of these limitations within Sasaoka.

Sasaoka is concerned not with different card receptacles, but with something very different. Sasaoka is directed to providing a small yet sufficiently rigid memory card, and nowhere teaches compatibility with different types of card receptacles, as can be seen below.

Recently, it has been required, for portable electronic devices, to have multiple functions and high performance, as well as to further reduce the size and weight of the body of the electronic devices. To satisfy such requirements, it has been also contemplated that the dimension of the memory card used as an auxiliary memory device is further reduced. Under such circumstances, the conventional memory card having a laminated casing structure may be deteriorated in the rigidity of the entire structure of the memory card due to the reduction of card size, particularly in the rigidity or durability against a destruction which may be caused, at the rib end faces fixed with each other, to the two halves of the card casing when the casing is twisted.

In order to prevent such a deterioration of rigidity, it is necessary to provide a sufficiently wide fixing area on the rib end face of each casing half, which may restrict the size reduction of the casing. That is, even if the circuit board is miniaturized to a minimum dimension while meeting the functional requirement thereof, the outside dimension of the casing (particularly, a two-dimensional size defined parallel to the major surface of the circuit board) tends to become considerably large, relative to the circuit board size, due to the wide fixing area of the rib end face of each casing half.

SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide a memory card used as an auxiliary memory device of portable electronic devices, which permits the outside dimension of a card casing to be reduced while maintaining the mechanical and electrical performance of the memory card.

It is another object of the present invention to provide a memory card, as an auxiliary memory device, wherein the difference between the outside dimensions of a card casing and of a circuit board accommodated in the casing is minimized, without deteriorating the rigidity of the entire structure of memory card and the protection for the circuit board.

In order to achieve the above objects, the present invention provides a memory card comprising a circuit board; and a hollow casing for accommodating the circuit board; the hollow casing including: an envelope-shaped support member having an integrally molded structure, an opening being defined at an end of the support member for insertion of the circuit board into the support member; and a lid member fixed onto the end of the support member to close the opening; the support member cooperating with the lid member to securely support the circuit board in the casing.

In the above memory card, it is preferred that the support member includes an envelope-shaped receptacle defined inside the support member for receiving a major part of the circuit board.

Sasaoka at Column 1.

Thus, Sasaoka does not teach the limitations of independent claim 5 and does not anticipate claim 5.

Dependent claim 6 further recites that “the first receptacle is an MMC card receptacle.” Again, Sasaoka does not teach this limitation. In addition to not teaching the limitations of independent claim 5, for all the reasons discussed above, Sasaoka does not teach anything about the MMC card structure. In fact, anything that Sasaoka may teach about a memory card contact structure appears to be that of the Memory Stick format of the Sony Corporation. The Memory Stick format is different from the MMC card format, as can be seen in the various MMC card standards contained in the Information Disclosure Statement of record in the present application, and as is well known among those of ordinary skill in the art.

Thus, Sasaoka does not teach the limitations of dependent claim 6 and does not anticipate claim 6.

The pertinent part of claim 7 recites:

“said electrical contacts are positioned in a pattern according to a multi-media card (MMC) standard, a single electrical contact being included in each of said recesses, and an additional recess having a contact therein is provided,

whereby the memory card remains compatible with the multi-media card (MMC) with the additional recess and whereby the additional recess provides compatibility with an additional memory card standard.”

Sasaoka does not teach any of these claim recitations, as was discussed above.

Therefore, it is asserted that claims 5-7 are not anticipated by Sasaoka, and allowance of these claims is kindly requested.

Claims 8, 9 and 10, 11, 12 and 14 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,885,482 to Sharp et al. (“Sharp”)

The Examiner has rejected all of these claims based upon the assertion that sharp teaches a “memory card [that] comprises a contact structure 210, 212 compatible for use in a first electronic device (at 212) and in a second electronic device (at 210).” Office Action at page 3.

However, Sharp is not directed towards a memory card and does not teach a memory card. Instead, Sharp teaches a circuit board for use with two different interface standards of different computer systems. Abstract. Sharp is concerned with the circuit boards for use in a personal computer, such as an IBM computer with PS/2 interface standard. Sharp at Col. 3 lines 55-65. This is not relevant to the specific recitations in the above mentioned claims related to a memory card, and Sharp certainly does not teach any of those recitations.

The circuit board taught by sharp is quite large, because it is taught to go into the backplane of a computer. A full length board taught by sharp would be 11.5 inches by 3.8 inches. A half length board taught by Sharp would have half the length and the same 3.8 inch height. Sharp at Col. 3, line 55 to Col. 4, line 7. Memory cards for use in the devices described are generally well understood to be pocket sized. In fact, even a half length board taught by Sharp would be larger than many digital cameras, mp3 players, or the like that are designed to accept the memory cards taught by the present application. This supports the position that one of skill in the art would not understand Sharp to teach memory cards at all, let alone all the claim recitations of the pending claims.

Furthermore, even if Sharp does teach a memory card, it does not teach the specific limitations of the claims.

For example, Sharp does not teach all the limitations of claim 5. Claim 5 recites:

“a first group of rectangularly shaped recesses formed in a row extending along one of said adjacent straight edges, said group containing electrical contacts at the bottom of the recesses, said group compatible with a first type of memory card receptacle; and

a second group of one or more recesses containing one or more electrical contacts,

 said first and second group of contacts together compatible with a second type of memory card receptacle” (emphasis added).

While Sharp may teach different groups of contacts, the groups are physically located in different areas of the card and are designed to go into different connectors that are physically located in different areas of a computer. The groups separately go into separate and physically distant connectors, for example a connector that connects to the contacts on edge 12 or a connector that connects to the contacts on edge 10, as seen in Figure 1 of Sharp. This is quite different than the claim requirement of the “first and second group of contacts together compatible with a second type of memory card receptacle.”

A camera or other device often has a single card slot designed to accept one type of card. The present invention provides for a card that would work in that slot and also work in, for example, a music player designed to accept another type of card because of the recited claim structure. This is because both groups of contacts in claim 5 can be used “together ... with a second type of memory card receptacle.”

Claim 14 succinctly recites this novel design as specifically implemented with regard to the preferred embodiment: “a card body with a contact structure compatible with both MMC card receptacles and SD card receptacles.”

While claim 5 was discussed as an example, all of the pending claims are novel based upon the unique combinations of each of the claims, which can be understood based upon the arguments above.

Therefore, Sharp cannot anticipate any of the pending claims, and it asserted that all the pending claims are in condition for allowance, which is kindly requested.

Rejections under 35 U.S.C. § 103

Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,885,482 to Sharp et al. ("Sharp")

Again, as discussed above, Sharp is not directed towards a memory card, does not teach a memory card, and does not teach the specific limitations of the pending claims. Instead, Sharp teaches a circuit board for use with two different interface standards of different computer systems. Abstract. Sharp is concerned with the circuit boards for use in a personal computer, such as an IBM computer with PS/2 interface standard. Sharp at Col. 3 lines 55-65. This is not relevant to the specific recitations in claim 13 related to a memory card, and certainly does not teach any of those recitations.

Therefore, Sharp cannot anticipate any of the pending claims, and it asserted that all the pending claims are in condition for allowance, which is kindly requested.

Conclusion

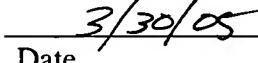
Accordingly, it is believed that this application is now in condition for allowance and an early indication of its allowance is solicited. However, if the Examiner has any further matters that need to be resolved, a telephone call to the undersigned attorney at 415-318-1163 would be appreciated.

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